An Instrument for the Measurement of the Resolving   SOV/12-61-1-7/21
Power and the Light Output of Fluorescing Screens (PR)

power of a screen up to a   maximum of 500 lines per mm.
The screen to be investigated is observed through an optical
microscope by a 20-40 fold magnification. The method devised
by A. A. Lebedev is applied, by which a grating projected
on the screen is investigated. The light output is measured
with a photocell and is given in candles per watt. A
description follows of the mechanical construction of the
instrument, of measuring devices and source of current. The
authors thank their collaborators Yu. M. Kushnir, V. I.
Milyutin, and Ye. S. Ratner. There are 4 figures and
1 Soviet reference.

Card 2/2

AUTHORS: Fetisov, D. V., Spektor, F. U., Milyutin,   SOV/48-23-6-6/28
              V. I., Raspletin, K. K.

TITLE: On the Resolving Power of Electrostatic Electronic Miscroscopes
              (O razreshayushchey sposobnosti elektrostaticheskogo elektronno-
              go mikroskopa)

ABSTRACT: By the influence of aberration, caused by the asymmetry of
              the optical system, the chromatic aberration and other factors,
              the theoretically attainable resolving power of electrostatic
              electronic microscopes, which would be limited solely by
              electron diffraction and spherical aberration is not attained.
              In the present paper the influence exercised by the asymmetry
              of the field of electrostatic lenses and of the entire optical
              system, the influence of the variation of the spherical aberration
              of the lenses, and the effects of the pulsation of the accelera-
              tion voltage of the instrument are investigated. Field asymmetry
              depends on the geometric dimensions of the individual electrodes
              of the lenses, and, first of all, the connection between the
Card 1/2   oval electrodes of the lenses and resolving power is investigated.

.On the Resolving Power of Electrostatic Electronic   SOV/48-23-6-6/28
Microscopes

Results obtained by measurements show an increase in resolution
with a reduction of the oval shape of the lens electrodes. In
a similar manner the influence exercised by the aberration from
the axial arrangement and the results obtained are shown by
four diagrams (Figs 2,3). A stigmatizer is then briefly described,
which is partly able to eliminate these errors. For the inves-
tigation of the spherical aberration of an electrostatic ob-
jective, in which the focal plane of the lens is outside the
range of the field, a schematical drawing is first given, after
which a constant of aberration is introduced. This constant
depends on the geometric dimensions of the middle electrode and
its potential. Various adjustments are investigated, and the
results obtained are shown by a table. The most satisfactory
results were obtained when the focal plane was approached as far
as possible to the lens. Finally, the influence exercised by the
pulsation of the direct current was investigated at various
amplitudes exercised by them upon resolving power. There are 5
figures, 1 table, and 3 references, 1 of which is Soviet.

Card 2/2

22176

24.3300
24.3500

S/048/61/025/004/025/048
B102/B212

AUTHORS: Pochtarev, B. I., Raspletin, K. K., and Fetisov, D. V.

TITLE: A device for measuring the luminescence parameters of
                fluorescent screens

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
                no. 4, 1961, 512-514

TEXT: This paper has been presented at the 9th Conference on Luminescence
(Crystal Phosphors) which took place in Kiyev from June 20 to 25, 1960. It
offers a brief description of the device ПРС (PRS) developed by the authors
for the investigation of the main characteristics of cathodoluminophores and
fluorescent screens. The latest model of the PRS device is a universal
electron-optical apparatus using a system of electrostatic lenses. The
device makes it possible to investigate the resolution, the light yield,
the composition of the luminescence spectrum, and the purity of the sur-
face if exposed to an electron beam. The maximum resolution of the device
is found at 700 lines/mm, the beam voltage can be varied from 0-30 kv and
the beam current from $2 \cdot 10^{-8} - 2 \cdot 10^{-6}$ a. The excitation current may be in-
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A device for ...

S/048/61/025/004/025/048
B102/B212

creased up to $1 \cdot 10^{-5}$ a. The spot diameter on the screen (luminophore) is constant and measures 20 mm. The operating pressure in the chamber is $(1-3) \cdot 10^{-4}$ mm Hg. 8-30 screens or 20 cuvettes with luminophore powder may be placed into the measuring chamber. The light yield of yellow-green or blue screens (luminophores) is measured with selenium and antimony-cesium photocells, respectively. The principle, design, and measuring operations of this device have been described earlier by the authors (Izv. AN SSSR, Ser. fiz. 23, No. 4, 462, 466 (1959)). Here, the measurement of the spectral composition of radiations is briefly described. This measurement is very easy to do in transmitted and also reflected radiation since the luminescence spectrum is nearly independent to obtain spectral curves, and a spectrograph or a monochromator is utilized. Fig. 2 shows the revolving optical system which is used to measure luminescence spectra. The authors thank Yu. M. Kushnir and M. A. Meyerov for advice, assistance, and interest. There are 2 figures and 1 Soviet-bloc reference.

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A device for ...

Legend to Fig. 2: 1) Tube; 2) lens;
3) mirror; 4) spectrometer;
5) support; 6) screen;
7) electron beam; 8) camera;
9) light path.

Fig. 2
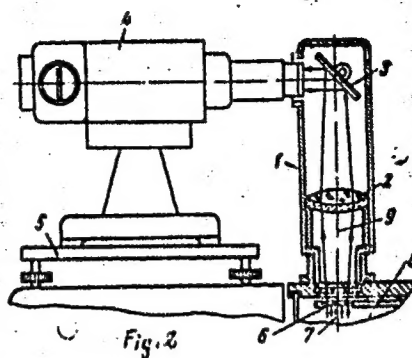
Card 3/3

S/048/61/025/006/008/010
B117/B212

AUTHORS: Kabanov, A.N. Kushnir, Yu.M., and Fetisov, D.V.

TITLE: Objective recording method of energy spectra of electrons
             for an electrostatic analyzer

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 25,
             no. 6, 1961, 748-751

TEXT: The present paper has been presented at the 3rd All-Union Conference
on Electron Microscopy, held in Leningrad from October 24 to 29, 1960.
The authors have applied the method suggested by Möllenstedt (Ref.2:
Möllenstedt G., Dietrich W., Optik, 12, 246 (1955)) for a 75-kv analyzer.
For photographic recording of spectra the dispersing element of the
analyzer consists of a slit and an analytical lens (Fig. 1 a). The prin-
ciple of a device, where optical properties of the analytical lens and
also the resolution and the intensity of the slit image remain constant,
consists in introducing a second slit (Fig. 15 and B). It is located
somewhat below the analytical lens, and is so far away from the optical
axis that only those electrons will pass it, whose energies correspond to

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Objective recording method ...

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the optimum conditions (R_{opt}). Changing the potential of the central electrode of the analytical lens will keep the quantity R_{opt} constant. The image of the slit can only change its intensity. At the screen it remains unchanged. By adjusting optimum conditions for elastically scattered electrons and by continuous change of the central electrode potential, the number of electrons passing through the second slit is changed and it is possible to obtain easily information on the energy losses of the electrons and on the intensity of the spectral lines. The device can be simplified when using a semi-transparent fluorescent screen, a photo-electron multiplier and an automatic electronic potentiometer of the type ЭПП-0.9 (EPP-0.9). Fig. 2 shows a diagram of the dispersing element of the analyzer, the electron gun, and also the device for objective recording of electron energy spectra. Both slits are adjustable. The lower slit may be opened to a width that is sufficient to let the whole spectrum through. Control pictures of the spectrum may be taken with the camera without disturbing the vacuum. A movable photographic plate holder makes it possible to use both recording methods. After the electron beam has passed through the second slit, it hits the semi-transparent fluorescent screen with a short afterglow. The color of the afterglow and the spectral maximum correspond Card 2/5

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to the sensitivity of the photocathode of the ФЭУ (FEU) multiplier, of type 1C (1S). Organic glass was used as light conductor. The signal of the FEU multiplier is amplified by a d-c amplifier У (U) and is fed to the input of the balancing cathode follower КП (KP). This is used to coordinate the amplifier resistor and that of the potentiometer EPP-0.9. The change of the central electrode potential of the analytical lens was done with a ПЛ (PL) potentiometer. The total resistance of the potentiometer was 20 kilohms and its linearity 0.1%. The potentiometer was fed from a battery $Б_2$ (B_2) of type БАС (BAS) having a voltage of 150 v. The high-voltage divider R_2 made it possible to obtain the wanted conditions for the analytical lens, according to the current used for the electron beam. The battery (B_1), which was connected to the electron gun circuit, was used for recording standards for the energy spectra. A change of the resistance R_1 made it possible to adjust the current of the electron beam as necessary. The resolution of the analyzer was ~140,000 : 1 and the dispersion 0.2 mm ev^{-1}. Another article will report on the application of the analyzer with a device for objective estimation of the lines of energy spectra. There are 3 figures and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc.

Card 3/5

KUSHNIR, Yu.M.; FETISOV, D.V.; RASPLETIN, K.K.; POCHTAREV, B.I.; SPEKTOR, F.U.; KABANOV, A.N.; ANISIMOV, V.F.

Scanning electron microscope, an X-ray microanalyzer. Izv.AN SSSR.
Ser.fiz. 25 no.6:695-700 Je '61.   (MIRA 14:6)
                        (X-ray microscope)

21399
S/032/61/027/012/012/015
B104/B102

2.4.3300

AUTHORS: Kushnir, Yu. M., Fetisov, D. V., Rozenfel'd, L. B., and
            Rozenfel'd, A. M.

TITLE: Domestic electron microscopes for direct examination of
            compact objects

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 12, 1961, 1528 - 1535

TEXT: The first part of this review paper deals with field-emission
microscopes. A microscope of A. M. Rozenfel'd and P. V. Zaytsev
(Izvestiya AN SSSR, ser. fizich. (in print)) and designed for testing
thermionic and secondary-electron emitters is described. It differs from
the ЭЭМ-75 (EEM-75) microscope in its vacuum system (10^{-6} mm Hg) and
magnetic objective lens (Fig. 1). 40 kv can be applied between the
cathode and anode (distance 2.5 mm) of the objective lens. The resolution
can thus be increased to 350 - 400 Å. The objective lens permits the
use of both electron and ion sources (Fig. 3). Air, hydrogen, helium,
argon, and other ions can be used for exciting secondary electron emission.
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Domestic electron microscopes for ...

In this case, the resolution is approximately 2000 Å. For the ЭЭМ-50 (EEM-50) microscope, an electrostatic immersion objective is being developed, which is designed to stretch and heat the specimen during examination. It can also be used for taking motion pictures of rapid processes. A field-emission microscope with electrostatic optics, developed by B. I. Popov and A. V. Druzhinin (2-e Soveshchaniye po elektronnoy mikroskopii, Nauchno-tekhnicheskoye obshchestvo im. A. S. Popov (annotatsii dokladov), M. (1958); Radiotekhnika i elektronika, no. 8 (1958)), is mentioned. The second part of this paper deals with reflecting electron microscopes which are known to operate like optical reflecting microscopes and have no high resolution owing to the large scattering of electron energies after reflection. At present, neither Russia nor other countries have such industrial electron microscopes. Some Japanese, British, and Russian transmission electron microscopes have attachments for observations in reflected light (ЭЭМ-100 (UEM-100); ЭЭМБ-100 (UEMB-100); ЭЭМВ-100 (UEMV-100)). The third part deals with scanning microscopes whose resolution reaches 500 - 200 Å when operating with secondary electrons. When operating with X-rays, the resolvable distance is

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Domestic electron microscopes for ...

approximately 1 . . A resolution of approximately 800 $\overset{o}{A}$ was obtained for some objects examined under Soviet scanning microscopes with X-ray analyzers. These microscopes play an important role in the investigation of p-n junctions. The direct X-ray image was studied in previous experiments. In this case, the electrode probe scans a certain part of the specimen surface (0.3·0.3 mm). 50 pictures per sec can be developed with 35 2 (35LKB2B) kinescope. Microchemical analyses with scanning microscopes are also described. The fourth part of the paper deals with reflection electron microscopes, in which accelerated electrons are slowed down and reflected in the microfield of the specimen. The image is determined by this microfield. The theoretical resolution of these microscopes is approximately 1000 $\overset{o}{A}$. Domestic microscopes differ from foreign types in that the images are produced in the vacuum part, whereby the quality of microphotographs is essentially improved. Magnification is about 2000. There are 10 figures and 25 references: 16 Soviet and 9 non-Soviet. The three most recent references to English-language publications read as follows: D. A. Melford a. P. Duncumb. Metallurgia, 59, 205 (1960); P. Duncumb. Brit. J. Appl. Phys., 10, 420 (1959); 11, 169

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B104/B102

Domestic electron microscopes for ...

(1960).
Fig. 1.   Emission microscope for examination of thermionic and secondary-
--electron emitters.
Legend: (1) Cathode of immersion
objective; (2) focusing electrode;
(3) anode; (4) diaphragm, (5) pro-
jection lens; (6) screen of finite
representation; (7) photoplate; (8)
and (9) cathode and anode of source
of primary electrons.
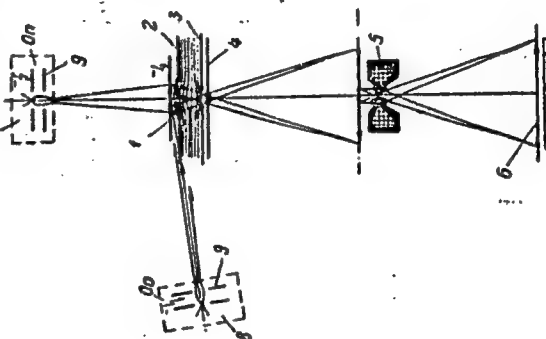
Card 4/5

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S/032/61/027/012/012/015
B104/B102

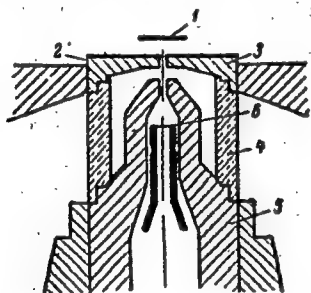'Domestic electron microscopes for ...

Fig. 2.   Magnetic objective for emission microscope.
Legend: (1) cathode; (2) anode; (3) upper pole shoe; (4) ring insertion
of non-magnetic material; (5) lower pole shoe; (6) diaphragm.

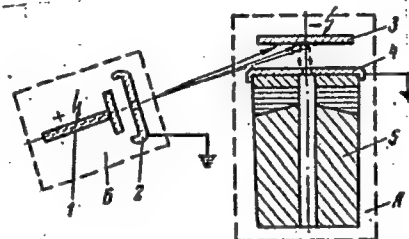Fig. 3. Objective with ion source.
Legend: (1) and (2) anode and cathode of ion source; (3) and (4) cathode
and anode of objective; (5) pole shoes of objective.

Fig. 2

Fig. 3

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S/048/63/027/003/020/025
B106/B238

AUTHORS: Kushnir, Yu. M., Fetisov, D. V., Raspletin, K. K.,
Pochtarev, B. I., Spektor, F. U., Gurova, R. P., Tokarev,
I. D., Osipov, V. N., and Pavlov, V. A.

TITLE: A modified raster microscope - local X-ray microanalyzer
and its use

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya, v. 27,
no. 3, 1963, 415-419

TEXT: A modified scanning electron microscope - local X-ray microanalyzer
is described briefly, and a few data are on its use in investigating
metals, minerals and semiconductors presented.   The crystal X-ray
spectrometer of the apparatus makes it possible to analyze the radiation
of elements from magnesium to uranium.   The dead time of the counter tube
does not permit of obtaining qualitative X-ray patterns when the
scanning velocities are high.   The authors therefore developed a system of
slow scanning which provides a scanning field with a 1 : 1 format and a
resolution of 200 - 300 lines at 1 frame/min.   The area of the scanning
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A modified raster microscope - local ...

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field on the object amounts to 0.04 to 0.25 mm^2. Under these conditions, the dead time of the counter tube imposes practically no limit on the resolution of the characteristic X-rays patterns. A block of slow sweeps serves for observing the images visually, and is provided with a moving film camera with a large afterglow. A second moving film camera, synchronized with the first, records the images photographically; it focuses the spot sharply and has a high accelerating voltage. The characteristic X-ray pattern were also recorded using an NaI-crystal scintillation counter which worked satisfactorily at wavelengths below 1.5 Å. The sharpness and contrast of the images obtained due to the secondary electrons were increased by a special device for correcting the frequency characteristics of the video amplifier block. This was done by filtering out signals between 25 and 150 cps and those near to 5 Mcs. The improvements of the basic elements of the X-ray microanalyzer made it possible to obtain characteristic X-rays patterns for the first time, and to undertake comparitive studies of a few objects on the basis of the microphotographs. Besides making it possible to obtain reflected characteristic electron beam and X-ray patterns for macroscopic surfaces, the instrument also permits the vizualization of p - n transitions in

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A modified raster microscope - local ... B106/B238

semiconductors. The band width of the barrier layer depends on the applied voltage and can easily be determined. The authors are now working to develop a raster microscope - local X-ray analyzer as an industrial model; this will feature magnetic optics, thus making it possible to achieve high resolution and a much higher current density in the electron probe. There are 5 figures.

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KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.;
    RASPLETIN, K.K.; SPEKTOR, F.U.; GUROVA, R.P.; POSTNIKOV, Ye.B.;
    OSIPOV, V.N.; PAVLOV, V.A.; POGUDINA, M.V.

    Combined scanning electron microscope and X-ray microanalyzer with
    magnetic electron optics. Izv. AN SSSR. Ser. fiz. 27 no.9:
    1166-1172 S '63.   (MIRA 16:9)
                (Electron microscope) (X-ray spectroscopy)

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.; RASPLETIN, K.K.; GUROVA, R.P.; POSTNIKOV, Ye.B.

The REMP-1 scanning-type electronic microprobe instrument. Zav.lab. 30 no.12:1510-1512 '64. (MIRA 18:1)

...hev. B. N.; Der-Shvarts. G. V.; Fetisov. D. V., Snr... , V. K.

TITLE: Microanalyzer for thin specimens

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 189-191

TOPIC TAGS: microanalyzer, structural analysis

ABSTRACT: An x-ray microanalyzer (MA) intended for structural analyses of
... areas of thin (2000 Å) foils is described. The MA is built into a desk-type
... electron microscope ("Tesla," Czechoslovakia) whose resolution is up to
... 100—30,000; the picture can be observed on a 60x60-mm
... ...ntivity can be evaluated... the bas...

L 45-56-65

ACCESSION NR: AP5007055

ASSOCIATION: none

SUBMITTED: 05Jun64   ENCL: 00   SUB CODE: IE, OP

NO REF SOV: 006   OTHER: 002

L 36554-66   EWT(1)

ACC NR: AP6015760   (A, N)   SOURCE CODE: UR/0048/66/030/005/0764/0765

AUTHOR: Kabanov, A. N.; Fetisov, D. V.; Tokarev, P. D.; Glushkova, E. D.; Kushnir, Yu. M.

ORG: none

TITLE: The MESEM-A-40 electrostatic electron microscope energy analyzer /Report, Fifth All-Union Conference on Electron Microscopy held in Sumy 6-8 July 1965/

SOURCE: AN SSSR. Izvestiya, Seriya fizicheskaya, v. 30, no. 5, 1966, 764-765

TOPIC TAGS: electron microscope, electron diffraction, electron scattering, inelastic scattering, electron energy

ABSTRACT: A type MESEM-40 electrostatic electron microscope, described elsewhere by V.I.Milyutin, D.V.Fetisov, K.K.Raspletin, F.U.Spektor, and B.I.Pochtarev (Izv. AN SSSR. Ser. fiz., 23, 454 (1959)), has been modified for use as an electrostatic energy analyzer for investigation of inelastic scattering of electrons. The modified instrument can also be used as an electron diffraction camera. Two auxiliary sections were fabricated to replace the section of the MESEM-40 microscope that contains the objective, intermediate, and projection lenses. One auxiliary section is inclined and contains the condensing lens for work with electron reflection. The other auxiliary section contains the specimen holder, the mechanism for controlling the motion of the

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L 36554-66

ACC NR: AP6015760   O

slit, the objective, and the analyzer lens. The accelerating potential can be con-
tinuously varied; its maximum value is 40 kV. The microscope can produce light field,
dark field, and steroscopic images at magnifications from 3000 to 11 000 and with a
resolution of 40-50 A. The energy resolution of the analyzer is 0.5-0.7 eV. The
electron microscope images, electron diffraction patterns, and electron energy spectra
are recorded photographically. Orig. art. has: 1 figure.

SUB CODE: 20/   SUBM DATE: 00/   ORIG REF: 002/   OTH REF: 003

Card 2/2 mLP

MANDEL'SHTAM, S.L.; VASIL'YEV, B.N.; VORON'KO, Yu.K.; TINDO, I.P.; SHURYGIN, A.I.; FETISOV, E.N.

"Of the short-wavelength end of the sun spectrum by means of satellites and rockets."

Report presented at the Spectrascopicum, 11th Intl. Calloq, Belgrade, Yug, 30 Sep - 4 Oct 63.

KANAYEV, A.A., kandidat tekhnicheskikh nauk, redaktor; BARSHTEYN,
I.K., kandidat tekhnicheskikh nauk, nauchny redaktor; FETISOV,
F.I., zavedmyushchiy redaktsiyey, inzhener; DLUGOKABSKIYI,
Ye.A., tekhnicheskiy redaktor.

Computation and design standards for coal pulverizing machinery.
[Trudy] TsKTI 24:3-275 '52.   (MLRA 8:2)
        (Coal, Pulverized)

PAVLOV, Ya.M., kandidat tekhnicheskikh nauk, dotsent; ITSKOVICH, G.M.,
    inzhener, retsenzent; POLYAKOV, V.S., kandidat tekhnicheskikh
    nauk, redaktor; FETISOV, F.I., inzhener, redaktor.

[Machine parts] Detali mashin. Moskva, Gos. nauchno-tekhn. izd-
vo mashinostroitel'noi i sudostroitel'noi lit-ry. Moskva, 1954.
480 p.   (MLRA 7:7)

1. Leningradskoye otdeleniye Mashgiza. Zaveduyushchiy redaktsiey
(for Fetisov)
    (Machinery)

FETISOV, G. G.

24027   FETISOV, G. G. Osnovopolozhnik agrobiologicheskoy nauki. (K 14-Y
Godovshchine so diya smerti I. V. Michurina). Sov. zootekhniya, 1949,
No. 3, S. 3-9.

SO: Letopis, No. 32, 1949.

FETISOV, G. G.

Fruit Culture

Good survey textbook ("Fruit and berry orchard in the central zone of the U.S.S.R."
P. N. Yakolev and others. Reviewed by G. G. Fetisov). Agrobiologiia, No. 1, 1952.

Kandidat S.-Kh. Nauk.

SO: Monthly List of Russian Accessions, Library of Congress, ___June___ 1952, Uncl.

FETISOV, G. G.

G. G. Fetisov, Plodovodstvo i yagodovodstvo /Fruit and Berry Growing/, ninth edition, Sel'khozgiz, 29 sheets - 1953.

The previous edition has undergone the following revisions and addutuibs; recent data on advanced experience; enlarged description of the varieties of fruits and berries. The latest requirements for standardization, regional demarcation, pest control, etc are also included.

The book is intended for the pupils of agricultural middle schools to train kolkhos leadership cadres. It may be useful to the practical orchardist.

SO: U-6472, 12 Nov 1954

TARASENKO, Mikhail Trofimovich; FETISOV, G.G., redaktor; TAIROVA, V.N.,
    redaktor; PERESYPKINA, Z.D., tekhnicheskiy redaktor; ZUBRILINA, Z.P.,
    tekhnicheskiy redaktor

    [Rejuvenation of a variety] Obnovlenie sorta. Moskva, Gos. izd-vo
    selkhoz. lit-ry, 1956. 206 p.   (MIRA 9:11)
        (Fruit culture)

FETISOV, G.G.; OSTAPENKO, V.I.

Use of the preparation ASD in fruit culture. Biul.nauch.-tekh.
inform.TSGL no.1:23-26 '56.   (MIRA 12:1)
            (Tissue extracts)   (Fruit culture)

KAMSHILOV, N.A.; ANTONOV, M.V.; BAKHAREV, A.N.; BLINOV, L.F.; BORISOGLEBSKIY,
A.D.; GAR, K.A.; GARINA, K.P.; GORSHIN, P.F.; GUTIYEV, G.T.;
DELITSINA, A.V.; DUBROVA, P.F.; YEVTUSHENKO, A.F.; YEGOROV, V.I.;
YEREMENKO, L.L.; YEFIMOV, V.A.; ZHILITSKIY, Ya.Z.; ZHUCHKOV, N.G.,
prof.; ZAYETS, V.K.; ISKOL'DSKAYA, R.B.; KOLESNIKOV, V.A., prof.;
KOLESNIKOV, Ye.V.; KOSTINA, K.F.; KRUGLOVA, V.A.; LEONT'YEVA, M.N.;
LESYUK, Ye.A.; MUKHIN, Ye.N.; NAZARYAN, Ye.A.; NEGRUL', A.M., prof.;
ODITSOV, V.A.; OSTAPENKO, V.I.; PETRUSEVICH, P.S.; PROSTOSERDOV,
N.N., prof.; RUKAVISHNIKOV, B.I.; RYABOV, I.N.; SABUROV, N.V.;
SABUROVA, T.N.; SAVZDARG, V.E.; SEMIN, V.S.; SIMONOVA, M.N.;
SMOLYANINOVA, N.K.; SOBOLEVA, V.P.; TARASENKO, M.T.; FETISOV, G.G.;
CHIZHOV, S.T.; CHUGUNIN, Ya.V., prof.; YAZVITSKIY, M.N.;
ROSSOSHCHANSKAYA, V.A., red.; BALLOD, A.I., tekhn.red.

[Fruitgrower's dictionary and handbook] Slovar'-spravochnik
sadovoda. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1957. 639 p.
(MIRA 11:1)

(Fruit culture—Dictionaries)

FETISOV, G.G., kandidat sel'skokhozyaystvennykh nauk.

Valuable book for publicizers of Michurin's teachings ("Ivan Vladimi-
rovich Michurin, the great transformer of nature", by Kh.K. Enikeev.
Reviewed by G.G. Fetisov. Agrobiologiia no.1:156-157 Ja-F '57.
(Michurin, Ivan Vladimirovich, 1855-1935)   (MIRA 10:4)
          (Enikeev, Kh.K.)

FETISOV, G.G.; KRYUKOVA, N.S.

Changes in the physiological properties of pollen in some apple
varieties. Nauch. dokl. vys. shkoly; biol. nauki no.1:120-122 '60.
(MIRA 13:2)

1.Rekomendovana Botanicheskim sadom Moskovskogo gosudarstvennogo
universiteta im. M.V. Lomonosova.
(Apple) (Pollen)

FETISOV, G.G.; FILIMONOVA, G.A.

Effectiveness of artificial pollination of fruit trees in
relation to various methods of bud castration. Agrobiologiia
no. 3:463 My-Je '60.   (MIRA 13:12)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.
Lomonosova, kafedra genetiki i selektsii.
        (Fruit trees)   (Fertilization of plants)

FETISOV, G.G.; FILIMONOVA, G.A.

Nature and the degree of lower bud damages by low temperatures in stone fruits. Agrobiologiia no.3:377-382 My-Je '62.

(MIRA 15:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova, kafedra genetiki i selektsii.

(STONE FRUIT)   (PLANTS--FROST RESISTNANCE)

FETISOV, G.G.; FILIMONOVA, G.A.

Application of the method of artificial freezing of the
cherry flower buds in the study of their frost resistance.
Vest. Mosk un. Ser. Biol., pochv. 19 no.2:64-72 Mr-Ap '64.
(MIRA 17:9)

1. Botanicheskiy sad Moskovskogo universiteta.

24(3)
AUTHOR: Fetisov, I. K.   SOV/56-36-4-23/70

TITLE: A Wall Probe in a Magnetic Field (Stenochnyy zond
              v magnitnom pole)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
              Vol 36, Nr 4, pp 1110-1118 (USSR)

ABSTRACT: Spivak and Reykhrudel' (Ref 1) gave a generalization of
              the Langmuir theory of probe measurements in the case
              of weak magnetic fields ($\sim$10 Oe). In the present paper
              the author investigates current measurements by means
              of a wall probe in strong ($\sim$1000 Oe) magnetic fields.
              The paper consists of two parts. In the first, probe
              measurements in a compensated ion beam are dealt with,
              and the second deals with probe measurements in the
              plasma of a gas discharge. Calculations are based on
              the following assumptions: Between two conductive planes
              a quasineutral plasma is assumed to be located, which
              is formed by the ionization of the residual gas by
              fast ions. The H-direction is assumed to be vertical
              to the conductive planes (= z-direction). The ion

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A Wall Probe in a Magnetic Field

current density is assumed to be constant with respect to z. Vertically to H, the plasma is assumed to be unlimited. The disk-shaped probe is assumed to be in one of the planes (i. e. vertical to H) (Fig 1). By basing upon these geometrically given conditions, a formula for the current J on to the probe is first derived. Calculations are followed step by step.

The final formula is $J - J_0 = - 2\pi nDl\dfrac{x_0}{T}\dfrac{d\vartheta}{dx}\Big|_{x = x_0}$

(J_0 is the current on to the probe if the probe potential is zero, n is the electron concentration, which is equal to the concentration of the fast ions, l - the distance between the conductive planes, T - the electron temperature in v, $x = kr$, $x_0 = kr_0$, r_0 the probe radius, $k^2 = j_z^0/nDl$, j_z^0 denotes electron current density on the probe). For the case in which the probe potential U_s is low, one obtains

$J - J_0 = \pi n\, Dlkr_0 U_s/T$ in the case of great kr_0, i. e.

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A Wall Probe in a Magnetic Field   SOV/56-36-4-23/70

in the case of great kr_o the current to the probe is
proportional to the probe radius, and in the case of
small kr_o it is proportional to the square of the
probe radius. In general it holds that $J - J_o = 0.4\pi nDlj$.

In the second part of the paper conditions are
investigated for the limiting case in which the
concentration of the slow ions is high compared to that
of fast ions. The plasma is assumed to consist of
electrons of the temperature T and slow ions of the
temperature T_+, where it is assumed that $T_+ \ll T$. The

slow ions are assumed to be formed by ionization of the
residual gas by an external source, by fast ions or
electrons, or else by the re-charge of ions. In this
case the variation of the plasma potential U_o in the

case of variation of the probe potential is limited by
a quantity of the smallness of T_+. U_o may be considered

to be invariable. By basing on these assumptions, the
Card 3/4   electron current to the probe is investigated first for

A Wall Probe in a Magnetic Field   SOV/56-36-4-23/70

the case in which there is no ionization. Rather complicated formulas are derived for $J_- - J_-^0$. Finally, the current of positive ions to the probe is investigated, and a formula is given for $J_+ - J_+^0$. The author in conclusion thanks O. B. Firsov and A. V. Zharinov for their help and discussions. There are 2 figures and 3 references, 2 of which are Soviet.

SUBMITTED: September 5, 1958

Card 4/4

24 (5), 24 (7)

AUTHORS: Fetisov, I. K., Firsov, O. B.   SOV/56-37-1-14/64

TITLE: The Resonance Charge Exchange of Doubly Charged Ions in Slow
             Collisions (Rezonansnaya perezaryadka dvukhzaryadnykh ionov pri
             medlennykh stolknoveniyakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37,
             Nr 1(7), pp 95 - 97 (USSR)

ABSTRACT: The authors of the present paper calculate the cross-section of
             the resonance charge exchange of doubly charged ions in adiaba-
             tic approximation, and then they compare the experimental and
             theoretical cross sections of the charge exchange of doubly
             charged positive ions of A, Kr, Xe, Ne. This problem is reduced
             to the calculation of the separation of the electron levels in
             the approximation of nuclei. The authors presuppose that with
             not very small distances between the atomic nuclei, the differ-
             ence $E_a - E_c$ can be calculated by substituting
             $$\psi_{c,a} \sim \left[\varphi_A(r_1,r_2) \pm \varphi_B(s_1,s_2)\right]/\sqrt{2}$$ for He^{++}. E_a and E_c denote the
             energy level of electrons corresponding to the antisymmetric and
             symmetric wave functions, respectively. φ_A and φ_B denote the

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The Resonance Charge Exchange of Doubly Charged Ions   SOV/56-37-1-14/64
in Slow Collisions

wave functions, belonging to helium, of electrons in the ground
state if the electrons belong to nucleus A and B, respectively.
Formulas for the energy of the electrons are given in first ap-
proximation. Most simple helium functions of the type C

$C \exp\left[-\alpha(r_1 + r_2)\right]$, $\alpha = a_o^{-1}\sqrt{(E_1 + E_2)/2E_o}$ were used as functions φ.

$E_1 + E_2$ denote the total energy of the electrons of the atom,

E_o the energy of the electron in the hydrogen atom, a_o the Bohr

radius. The theory discussed in the present paper is suitable

for the relative velocities defined by the inequality $v \ll (\alpha e^2/\hbar)a_o$.
The results of calculations are illustrated in a diagram. The
relative velocity of motion of the nuclei is plotted on the axis

of abscissas, $\alpha^2\sigma$ on the axis of ordinates, σ denoting the cross
section of the charge exchange of two electrons. The curve con-
tained in this diagram falls almost linearly downward to the
right, only in its initial range it is a little concave upward.
The same diagram contains the experimentally measured cross

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The Resonance Charge Exchange of Doubly Charged Ions in   SOV/56-37-1-14/64
Slow Collisions

sections of the two-electron charge exchange of the rare gases
A, Ne, Kr, Xe. As the one-electron charge exchange proceeds in
the same degree by means of the two-electron charge exchange
and by means of elastic scattering (which was not considered in
the calculation of the cross section), the theoretical curve
rather corresponds to the sum $\sigma_{20} + (1/2)\sigma_{21}$, σ_{20} denoting the
cross section of the two-electron charge exchange, and σ_{21} the
cross section of the one-electron charge exchange. In the second
diagram, the experimental results for the case just mentioned
are compared with theory. In the authors' opinion, the results
found here agree better with the experiment than those found by
Gurnee and Magee (Ref 9). There are 2 figures and 11 references,
3 of which are Soviet.

SUBMITTED: December 29, 1958

Card 3/3

YELPIDINSKIY, A.V.; FETISOV, I.N.

Scintillation alpha-detector with a thin window. Prib. i tekh.
eksp. 6 no.1:57-60 Ja-F '61.   (MIRA 14:9)
      (Alpha rays) (Scintillation counters)

YELPIDINSKIY, A.V.; FETISOV, I.N.

Relationship between the characteristics of a scintillation
alpha-particle detector and the granularity of ZnS. Prib. i
tekh.eksp. 6 no.4:52-57 Jl-Ag '61.   (MIRA 14:9)

1. Fizicheskiy institut AN SSSR.
                        (Scintillation counters)

27. 2400
24.6700

S/089/62/013/002/003/011
B102/B104

AUTHORS: Yelpidinskiy, A. V., Fetisov, I. N.

TITLE: The photoneutron yield and shielding problems of high-energy
             cyclic electron accelerators

PERIODICAL: Atomnaya energiya, v. 13, no. 2, 1962, 140-144

TEXT: The giant-resonance photoneutron yield of various metals in
absorptions of electrons with more than 30 Mev was calculated. The yield
Q is obtained from the photon equilibrium spectrum $\Gamma_{ph}(E,E_o)$ of primary
electrons with E_o from the relation

$$Q = Nnt_o \int_{E_n}^{E_o} \sigma_{ph}(E) \Gamma_{ph}(E,E_o)dE$$

where N is the number of absorbed electrons, n the number of nuclei per cm^3
of the absorber, t_o the radiation length, E_n the (γ,n) threshold energy,
σ_{ph} the total photoneutron production cross section. An approximation,

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The photoneutron yield and ...

S/089/62/013/002/003/011
B102/B104

sufficient for calculating the shielding, gives $Q = 1.5 \cdot 10^{-4} NE_0 sec^{-1}$ for an averaged neutron yield. This relation holds for any $E_0 \geqslant 30$ Mev (E_0 is the electron energy at the end of the acceleration cycle in Mev and N is the number of electrons accelerated during one second. In most cases all neutrons can be assumed to have formed either in the acceleration material or in the shield. If, furthermore, the dimensions of the apparatus are so chosen that the accelerator can be regarded as a point source, then a value of $h = 36 \log(NE_0/R^2) - 340$ [cm] is obtained for the smallest

necessary shield thickness if the shield consists of ordinary concrete, R being the distance [m] of the external shield wall from the accelerator. This thickness guarantees a neutron flux weakening to 3 n/cm^2 sec. The corrections for the finite dimensions of the accelerator can be made by the usual formulas. These estimates of shield thickness take no account of the neutrons due to bremsstrahlung. This kind of neutron radiation, however, depends considerably on the shield structure. It constitutes a local hazard greater than primary bremsstrahlung only when the concrete shield contains additional layers heavy metal (>15 cm Pb or 35 cm Fe).

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The photoneutron yield and ...

In this case $\eta \lesssim 1$, otherwise $\eta \simeq 2 \cdot 10^{-3}$ (η is the ratio between neutron radiation hazard and primary bremsstrahlung hazard). There is 1 table.

SUBMITTED: June 29, 1961

Card 3/3

SLAVATINSKIY, S.A.; FETISOV, I.N.

Cross sections of the generation of K^0-mesons and hyperons
at energies of hundreds of Bev. Izv. AN SSSR. Ser. fiz. 28
no.11:1758-1760 N '64.   (MIRA 17:12)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.

ACC NR: AP7007076   SOURCE CODE: UR/0048/66/030/010/1577/1580

AUTHOR: Denisov, Ye. V.; Dedenko, L. G.; Dubrovina, S. A.; Kotel'nikov, K. A.;
Morozov, A. Ye.; Ogurtsov, O. F.; Sokolovskiy, V. V; Slavatinskiy, S. A.;
Fetisov, I. N.

ORG: Physics Institute im. P. P. Lebedev, AN SSSR (Fizicheskiy institut
AN SSSR).

TITLE: Nuclear cascade process in an ionization calorimeter /Paper
presented at the All-Union Conference on Cosmic radiation physics, Moscow,
15-20 Nov 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 10, 1966,
1577-1580

TOPIC TAGS: pi meson, calorimeter, proton

SUB CODE: 20

ABSTRACT: Results of the calculation of the nuclear cascade process in an iron
absorber were correlated with experimental data obtained on the ionization ca-
lorimeter of the Tyan'-Shan' Cosmic Ray Station. It was established that at
$E_0 = 300$ Bev approximately 30% of the energy spent being carried away by
strongly ionizing particles ("black tracks"), and the rest by protons with an
energy of $\sim$ 150 Mev ("grey tracks"). Errors in the measurement of $E_0 = 200$
Bev associated with fluctuations in the recording of strongly ionizing parti-
cles amounted to $\sim$ 12% ($\sim$ 11% for "black tracks" and $\sim$ 4% for "grey
tracks"). In measurements by means of an ionization calorimeter of the energy
transmitted to π^0 mesons, ionization produced by particles originating from
nuclear splitting must be considered. The authors thank N. A. Dobrotin and V. S.
Murzin for valuable critical observations, V. G. Ignat'yevaya, Z. G. Yereminaya,

Card 1/2

ACC NR: AP7007076

L. V. Shibayevaya and N. S. Kochurkinaya for processing the experimental
data. Orig. art. has: 2 figures, 2 formulas and 1 table. [JPRS: 39,658]

Card 2/2

FETISOV, K.A.

Effect of mud applications on the excitability of nerves and muscles.
Vop. kur., fizioter. i lech. fiz. kul't. 26 no.5:399-404 S-O '61.
(MIRA 14:11)

1. Iz kafedry normal'noy fiziologii (zav. - dotsent L.G.Makarov)
Omskogo meditsinskogo instituta imeni M.I.Kalinina.
(MUSCLES—MOTILITY)   (NERVES)
(BATHS, MOOR AND MUD)

FETISOV, K.A.

Effect of applications of silt muds from saline lakes on
the restoration of injured peripheral nerves. Vop. kur.,
fizioter. i lech. fiz. kul't. 27 no.5:413-417 S-O'62.
(MIRA 16:9)

1. Iz kafedry normal'noy fiziologii (zav. - dotsent L.G.
Makarov) Omskogo meditsinskogo instituta.
(NERVES, PERIPHERAL—WOUNDS AND INJURIES)
(EARTHS, MEDICAL AND SURGICAL USES OF)

FETISOV, K. K.

Fetisov, K. K.

"A study of spring wheat from the high mountanious regions
of Georgia under the conditions of the northern European
portion of the RSFSR." All-Union Order of Lenin Academy of Ag-
ricultural Sciences imeni V. I. Lenin. All-Union Inst of
Plant Growing. Moscow, 1956 (Dissertation for the degree of
Candidate in Agricultural Sciences)

Knizhnaya letopis
No. 15, 1956. Moscow

FETISOV K.S.

FETISOV,K.S., inzhener, laureat Stalinskoy premii.

Simultaneous work in building blast-furnace plants.   Mekh.trud.
rab.9 no.8:28-30 Ag'55.   (MIRA 8:10)
                        (Blast furnaces)

VEKSMAN, A.M., inzhener; FETISOV, K.S., inzhener; SHURYGIN, A.A., inzhener.

Construction of precast concrete granaries in the virgin and fallow lands. Nov.tekh. i pered. op. v stroi. 18 no.1:19-23 Ja '56.
(MIRA 9:6)
(Omsk Province--Granaries)

FETISOV, K.S., inzhener.

"Erecting vertical steel storage tanks." V.S. Kornienko.
Reviewed by K.S. Fetisov. Nov.tekh.i pered.op.v stroi.
18 no.8:31-32 Ag. '56.

(MLRA 9:10)

(Tanks) (Kornienko, V.S.)

FETISOV, K.S., inzhener.

Manufacturing precast reinforced concrete elements in the Netherlands.
Nov.tekh.i pered.op.v stroi.19 no.1:25-28 Ja '57.   (MLRA 10:2)
(Netherlands--Precast concrete)

FETISOV, K.S., inzh.

Using aluminum alloys in construction. Mont.i spets.rab.v stroi.
22 no.10:1-6   O '60.
(MIRA 13:9)

1. Glavstal'konstruktsiya Minstroya RSFSR.
(Aluminum alloys) (Factories--Design and construction)

FETISOV, K.S., inzh.

"Protecting aluminum alloy construction elements from corrosion."
Mont. i spets. rab. v. stroi. 22 no.12:31 D '60.   (MIRA 13:11)
            (Corrosion and anticorrosives) (Alluminum alloys)

KORNIYENKO, V.S., inzh.; FETISOV, K.S., inzh.

Assembly of blast heaters from rolled blanks. Mont. i spets.
rab. v stroi. 23 no.12:2-4 D '61.   (MIRA 15:2)

1. Proyektnyy institut Promstal'konstruktsiya i Glavstal'
konstruktsiya Minstroya RSFSR.
                    (Blast furnaces—Equipment and supplies)

FETISOV, K.S., inzh.

Assembly of the steel elements of blast furnaces. Mont. i
spets. rab. v stroi. 24 no.6:7-10 Je '62.   (MIRA 15:6)

1. Glavstal'konstruktsiya.
     (Blast furnaces)   (Steel, Structural)

FETISOV, K.S., inzh.

Assembly of the metal elements of a stadium in Jakarta.
Mont. i apets. rab. v stroi. 24 no.10:23-26 '62.   (MIRA 15:10)

1. Ministerstvo stroitel'stva RSFSR.
                    (Jakarta, Indonesia—Stadia)

BONDAR', Yevgeniy Petrovich, inzh.; FETISOV, Konstantin Semenovich, laureat Gosudarstvennoy premii, inzh.; KALININ, B.P., inzh., nauchn. red.; YUDINA, L.A., red.; SHERSTNEVA, N.V., tekhn. red.

[Assembling reinforced concrete structures] Montazh zhelezobetonnykh konstruktsii. Moskva, Gosstroiizdat, 1963. 246 p.
(MIRA 17:1)

K. V.

3.5-25

Fetisov, K. V. Ob opredelenii baricheskoi tendentsii. [On the determination of the barometric tendency.] *Meteorologiia i Gidrologiia*, No. 7:25-28, 1952. fig. 2 tables. DLC

551.501.42:551.509.312

At present many meteorological stations of Central Asia located at heights more than 500 m above sea level calculate the barometric tendency from values reduced to sea level. The author investigated numerous cases of pressure distribution over Turkistan and established that the method of pressure reduction to sea level is inadequate and calculated barometric tendency from reduced values increased the probable error. The error from unreduced values is usually less than 1 mb, but errors from reduced values can reach several millibars. *Subject Heading*: 1. Barometric tendency calculation.—*N.T.Z.*

FETISOV, K.V.

Local changes in atmospheric pressure caused by local changes in wind velocity. Trudy Kaz. NIGMI no.6:101-103 '56.   (MIRA 10:9)
(Atmospheric pressure)   (Winds)

FETISOV, K.V.

Local windsand pressure in the region of the May-Tyube Meteorological Station. Trudy Sred.-Az. nauch.-issl. gidrometeor. inst. no.1:169-173 '59.
(May-Tyube region--Winds)   (Atmospheric pressure)
(MIRA 13:8)

An Experiment on Rapid Production of Steel from Phosphorus Cast Iron

FETISOV, I.S.

Improved model of the SKA blueprinting machine. Vych. i org.tekh.
v stroi. i proek. no.1:84-86 '64. (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo
proyektirovaniya i tekhnicheskikh issledovaniy Gosstroya SSSR.

FETISOV, L.S.

"Romajor III," a new model of a small offset press. Vych. i org.tekh.
v stroi. i proekt. no.2:97-100 '64.   (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo
proyektirovaniya i tekhnicheskikh issledovaniy Gosstroya SSSR.

FETISOV, L.S.

Recommendations for remodeling the "Stankin" (SKM-1) and the "Viskhom" (SKM-4) blueprinting machines. Vych. i org.tekh. v stroi. i proekt. no.3:78-80 '64.   (MIRA 18:10)

1. Gosudarstvennyy institut tipovogo i eksperimental'nogo proyektirovaniya i tekhnicheskikh issledovaniy Gosstroya SSSR.

FETISOV, M., kand.med.nauk

Contribution of scientists to agricultural workers. Okhr. truda
i sots. strakh. 6 no.12:10-13 D '63.   (MIRA 17:2)

1. Direktor Saratovskogo nauchno-issledovatel'skogo instituta
sel'skoy gigiyeny.

FETISOV, MAKHAIL IVANOVICH

FETISOV, Makhail Ivanovich

FETISOV, Makhail Ivanovich - Academic degree of Doctor of Philological Sciences, based on his defense, 28 October 1955, in the Council of the Inst of World Literature inemi Gor'kiy Acad Sci USSR, of his dissertation entitled: "Literary ties of Russia with Kazakhstan (Thirties-Fifties of the Nineteenth Century)." For the Academic Degree of Doctor of Sciences

SO: Byulleten' Ministerstva Vyshego Obrazovaniya SSSR, List No. 2, 21 January 1956, Decisions of the Higher Certification Commission concerning academic degrees and titles.

FETISOV, M.I.

[Results and perspectives of studies on the hygiene of
agricultural work] Itogi i perspektivy issledovanii po
gigiene sel'skokhoziaistvennogo truda. Moskva, Medi-
tsina, 1964. 10 p.   (MIRA 18:7)

LEVSHINA, Ye.S.; FETISOV, M.M.

Design of compensation device for the measurement of generalized
mechanical power. Priborostroenie no.1:1-4 Ja '64.   (MIRA 17:2)

NOVITSKIY,P.V.; FETISOV,M.M.

A measuring amplifier with an overlapping feedback demodulator.
Izm.tekh.no.4:37-38 Jl-Ag '55.   (MIRA 8:10)
                (Electric measurements)

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 5, p 117 (USSR)

SOV/124-57-5-5846

AUTHOR: Fetisov, M. M.

TITLE: Using Induction-type Pressure Transducers to Measure Transient Pressures (Ispol'zovaniye induktivnykh preobrazovateley dlya izmereniya nestatsionarnykh davleniy)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1955, Nr 176, pp 214-227

ABSTRACT: The author examines the various methods used in the calculation and design of induction-type pressure transducers. He lists those condi- tions fulfillment of which will, in his opinion, result in the maximum possible relative sensitivity of one of the most important of the trans- ducer parameters. He indicates those transducer circuit connections which he deems most suitable for finite-resistance loads and for infinite-resistance loads (i. e., for the input of an electron-tube ampli- fier). Included are design specifications for transducers (with and without amplifiers) intended for measuring variable pressures. A description and schematic diagram are given of the design of one model of a small-size induction-type differential (hybrid-coil) trans- ducer (for use with amplifier). This transducer, having an over-all

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Using Induction-type Pressure Transducers to Measure Transient Pressures

SOV/124-57-5-5846

size of 11 x 9 mm, is capable of measuring extremely low pressures. For example, with a transducer-membrane thickness of 0.03 mm and a starting gap of 0.1 mm, the type-VIII vibrator of an MPO-2 oscilloscope exhibits a full beam deflection at a pressure of only 1.5 mm H_2O. Within a broad range of pressures the calibration curve is linear, and the transducer's operating voltage on an 800-cps power-source current frequency is 12 volts in both coils. Included is a circuit diagram for a pressure-measuring apparatus intended for use with an induction-type transducer without an amplifier; design specifications for a transducer of this type are given also. Depending on the thickness of its membrane, a transducer of this type will measure effectively gas and liquid pressures over the very broad pressure range from 15 mm to 10 m H_2O. For all practical purposes the transducer is quite sufficiently sensitive and its calibration curve may be regarded as linear. In conclusion, the author cites several possible design features that would balance out the effect of a relatively large constant-pressure component of gas and liquid total pressures exhibiting only very small variations. Bibliography: 7 references.

N. A. Preobrazhenskiy

Card 2/2
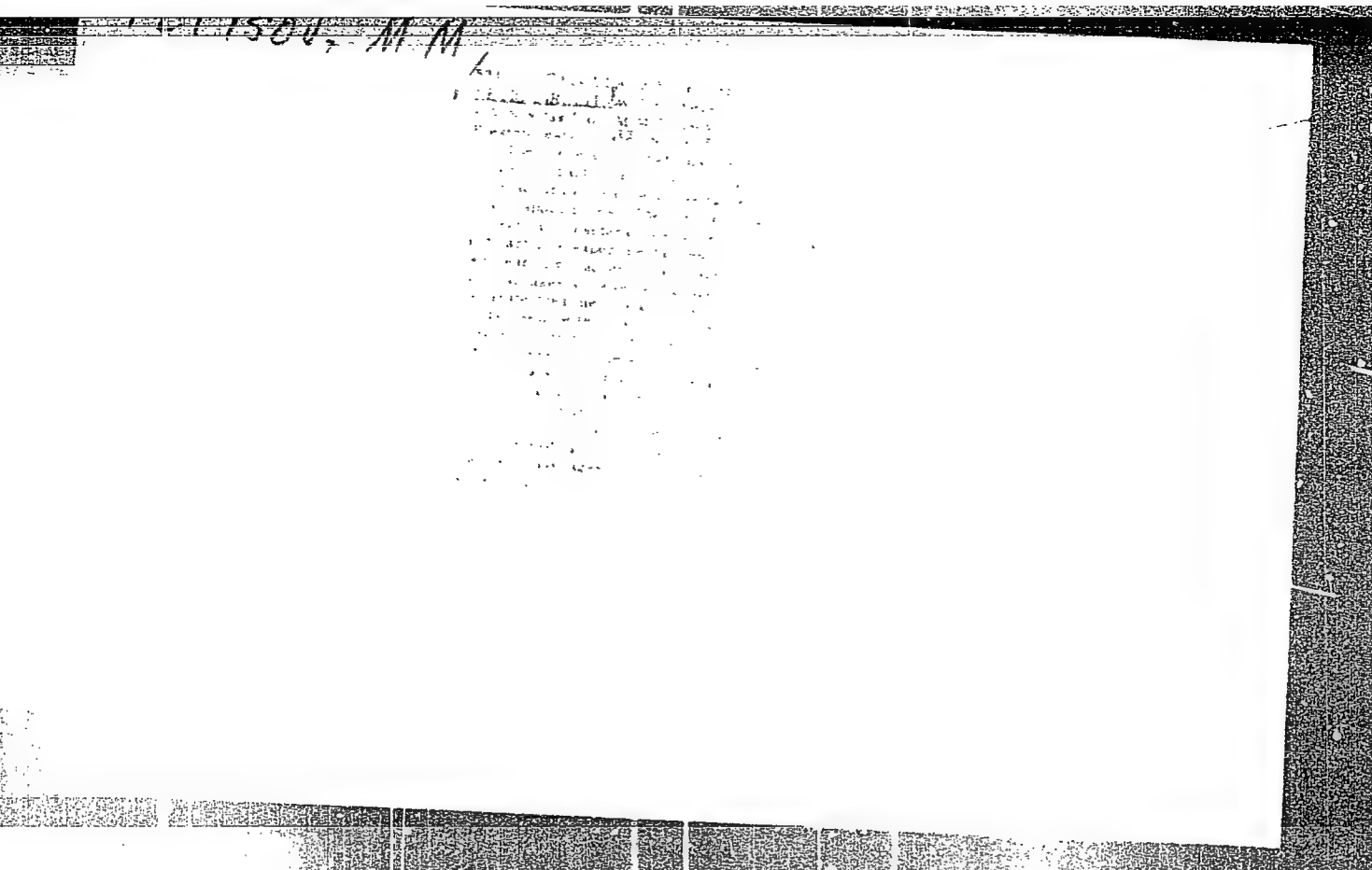
8(0)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 123 (USSR)

AUTHOR: Fetisov, M. M.

TITLE: Some Problems in the Theory of Automatic Instruments With Compensation of the Nonelectric Quantity Being Measured (Instruments With Inverted Transducers)

PERIODICAL: Nauchno-tekhn. inform. byul. Leningrad. politekhn. in-t, 1957, Nr 6, pp 65-80

ABSTRACT: The structure of inverted-transducer instruments and its influence on measurement errors are considered. A classification table of inverted transducers with exemplary values of their inherent and temperature errors is suggested. Principal and functional schemes of some Soviet and foreign inverted-transducer instruments are presented. It is noted that with an insufficient stability of the primary transducer (2-4%), the adoption of a compensating-type measurement of nonelectrical quantity with the use of

Card 1/2

Some Problems in the Theory of Automatic Instruments With Compensation SOV/112-59-4-7314

inverted transducers that have a low error (0.03-0.5%) always brings about a considerable improvement in accuracy. Bibliography: 13 items.

A.F.K.

Card 2/2

FETISOV, M. M.

"Grundprinzipien im Aufbau von Kompensographen zur Messung nichtelektrischer Grössen"

report presented at the
Intl. Measurements Conference (IMEKO) Budapest., 24-30 November ~~1960~~ *1958*

FETISOV, M. M.

"Design of self-balancing potentiometers for measuring non-electrical quantities" (Section VII)

report submitted for Measurement and Automation, Scientific Society for (Hungarian) Intl. Measurements Conference - Budapest, Hungary, 24-30 Nov 58

FETISOV, M.M.

AUTHOR: Gikis, A. V., Candidate of Technical Sciences, Docent
TITLE: Inter-University Scientific Conference on Electric
Measuring Instruments and Technical Means of Automation
(Mezhvuzovskaya nauchnaya konferentsiya po
elektroizmeritel'nym priboram i tekhnicheskim sredstvam
avtomatiki)

SOV/144-58-9-18/18

ABSTRACT: The conference was held at the Leningradskiy
elektrotekhnicheskiy institut imeni V. I. Ul'yanova
(Lenina)(Leningrad Electro-technical Institute imeni
V. I. Ul'yanov (Lenin)) on November 11-15, 1958. The
representatives of eleven higher teaching establishments
and three research institutes participated and a large
number of specialists of various industrial undertakings
were present.

Assistant M. M. Fetisov (Leningrad Polytechnical Institute)
presented a paper on the "Basic problems of the theory
of automatic electric metering instruments with reverse
transformation for measuring non-electrical magnitudes".
The method is based fundamentally in compensating the
measured non-electrical magnitude with a similar
magnitude produced by means of a transducer.
Professor B. R. Kharchenko (Moscow Lenin Order Power
Institute) presented the paper "Determination of the
dynamic errors of a magneto-electric oscillograph by means
of analogues".
M. F. Suvid (Kiyev Polytechnical Institute) presented the
paper "Measurements using magnetic bridges".
In addition to this, three further papers were read on
magnetic measurements.

25(1)

SOV/146-59-1-7/21

AUTHOR: Fetisov, M.M., Assistant

TITLE: Principles of Building Instruments for Measuring Nonelectric Magnitudes With Compensation of the Nonelectric Magnitude to Be Measured

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Priborostroyeniye, 1959, Nr 1, pp 47-54 (USSR)

ABSTRACT: The author reviews the development of electrical instruments for measuring nonelectric magnitudes. He explains briefly the application of inverters for compensation of nonelectric magnitudes to be measured, but does not describe any specific instruments. He describes in more detail an accelerometer for which he received Author's Certificate Nr 113183, dated December 13, 1955, and an instrument for measuring vibration, Author's Certificate Nr 114054, dated June 20, 1957. Finally, he mentions that electrical instruments with compensation of the nonelectric magnitude to be measured were introduced in 1950, but today they already belong to the class of precision measuring instruments.

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Principles of Building Instruments for Measuring Nonelectric Magnitudes With Compensation of the Nonelectric Magnitude to Be Measured

There are 5 block diagrams, 2 circuit diagrams, 2 graphs and 3 Soviet references.

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina (Leningrad Polytechnic Institute imeni M.I. Kalinin)

SUBMITTED: February 14, 1959

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s(2), 9(6)

AUTHOR: Anisimov, V. I., Engineer   SOV/119-59-3-13/15

TITLE: The Inter-university Scientific Conference on Electrical Measuring Instruments and on the Technical Means of Automation (Mezhvuzovskaya nauchnaya konferentsiya po elektroizmeritel'nym priboram i tekhnicheskim sredstvam avtomatiki)

PERIODICAL: Priborostroyeniye, 1959, Nr 3, pp 30-31 (USSR)

ABSTRACT: This conference was held at the Leningradskiy elektrotekhnicheskiy institut im. V. I. Ul'yanova (Lenina) (Leningrad Institute of Electrical Engineering imeni V. I. Ul'yanov (Lenin)) in November 1958. It was attended by more than 500 representatives of universities, scientific research institutes, of the OKB (Special Design Office), of industries and other organizations. More than 30 lectures were delivered in the meetings of this Conference. In opening the conference I. F. Borod[?]skiy underlined the outstanding importance of automation and of measuring technique for the development of national economy. I. M. Shumilovskiy in his lecture reported on "The Trend in the Development of Methods of Radioactive Control of Production Rate" and outlined the extensive

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possibilities of using radioactive methods in such control.
V. G. Shramov and S. A. Spektor reported on a new method of measuring heavy direct currents with the help of the nuclear magnetic resonance. M. A. Rosenblat investigated problems of the application of magnetic amplifiers in automation and in measuring technique. A. V. Fateyev reported on the present-day state on the prospects of automatic control technique. Ya. I. Zaypkin investigated some peculiar features of and the prospects offered by automatic pulse systems. The lecture by N. G. Boldyrev dealt with problems of stability of discrete automatic systems. V. B. Ushakov discussed the main trends in the development of mathematical analog computers and of V. S. Kryhyekin dealt with problems designed for industrial use. The report by V. S. Kryhyekin deals with an electronic analog correlator for the calculation of correlation functions in the investigation of winds in the ionosphere. K. I. Turgenson reported on the most important methods, which guarantee both an active and passive freedom from disturbances in

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discrete selective systems. Ya.Y. Barsvol'yev discussed problems of averaging, differentiation, and balancing of time-dependent functions which can be represented by electric signals. F. F. Shuridin investigated new computing devices with polarized relays. A. V. Frenke and Yu. M. Bushin reported on instrument transformers for automatic measurements with automatic recording. V. B. Ushakov and I. K. Kopay[?]ova reported on a computer for the automatic centralized control of production specifications. H. M. Philippy discussed fundamental problems of the theory of automatic measuring instruments with an inverse conversion for the measurement of non-electric quantities. Ye. I. Kaplan[?] dealt with problems of the construction of automatic d. c. potentiometers with high accuracy. D. I. Baslov discussed a high-precision automatic d. c. bridge for digital computation. The participants in the Congress listed below discussed the following subjects (which, however, are not given by the exact wording of the titles). V. L. Ivanton The planning of measuring elements for

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The Inter-university Scientific Conference on Electrical Measuring Instruments and on the Technical Means of Automation

SOV/119a-59-3-13/15

accurate automatic quotient-type meters in digital computations. L.E.Khurchenko. Methods of determining the dynamic errors of magnetic oscilloscope by simulation. P.P.Ornatskiy. Problems in measuring electric quantities at extremely low frequencies by electrical indicating instruments of various systems. L.F.Kulikovskiy. Novel types of a.c. compensators. A.B.Rosenkrants. Automatic bridges and a.c. compensators utilized for the control of the parameters of condensers in series production. L.I.Stolov. Some characteristics of midget induction motors which can be used in measuring technique and automation. B.A.Borodayev. Ultrasonic pressure- and liquid-level gage. Yu.A. Skripnik. The application of a phase-sensitive commutation indicator for semi-equilibrium bridges. I.F. Surdu. The application of instruments with magnetic amplifiers for considerable simplification of the design of the apparatus and the circuitry used in the measurement of non-electric quantities. V.L.Karasik. Method of increasing the sensitivity of types of analysers. P.V. Novitskiy.

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Design of apparatus for measuring vibration quantities. V.V. Faydysh. Main types of non-linear semiconductor resistors and possibilities of their application to circuitry in automation and measuring technique. Novogamovskiy. Development of measuring amplifiers with semiconductor triodes. Ye.V. Korovatliev, K.L. Smirnov. Ye.Ye. Afanas'yev. Yu.V. Germanov. Precision semiconductor frequency meter operating according to the pulse-counting principle. V.G. Nikitin and L.A. Bershidnikov. Methods of measuring the magnetic field strength by means of bismuth resistors and transducers operating on the Hall effect principle. A resolution was adopted by the closing plenary meeting of the Conference, which indicates ways of improving and coordinating scientific research work in the field of automation, electric measuring- and computing technique.

Card 5/5

FERISON, M.M., assistent

Principles for the construction of instruments for measuring non-
electric values with compensation of the measured nonelectic value.
Izv.vys.ucheb.zav.; prib.   no.1:47-54 '59.   (MIRA 12:11)

1. Leningradskiy politekhnicheskiy institut im. M.I. Kalinina.
                     (Electric measurements)

9(6)

AUTHORS: Novitskiy, P. V., Candidate of   SOV/119-60-1-6/14
Technical Sciences, Presnyakov, P. D., Engineer,
Fetisov, M. M., Engineer

TITLE: The Construction of Piezoelectric Accelerometers With
Minimum Lateral Sensitivity

ABSTRACT: A piezoelectric transducer (Fig 1) is theoretically not
sensitive to oscillations perpendicular to a symmetry axis,
i. e. for oscillations in the direction a_b (Fig 1) it gives
no signals. A lateral sensitivity, however, exists due to
several causes. As such causes the following are mentioned:
Wrong mounting of the accelerometers to the surface of the
workpiece, wrong fitting of the piezoelement into the
accelerometer, or deformation of the piezoelectric element
by the mass 1 (Fig 1). A decrease of the lateral sensitivity
of the accelerometer, which is caused by the aforementioned
deformation, by fixing the mass 1, was found to be impossible.
It was found useful to introduce the piezoelectric element

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The Construction of Piezoelectric Accelerometers
With Minimum Lateral Sensitivity   SOV/119-60-1-6/14

into the mass 1 according to figure 2a or by the method shown
in 2b. As a further means of reducing lateral sensitivity, the
authors mention the use of a double-transducer (Fig 3), in
which the lateral sensitivity of the two transducers is com-
pensated. A detailed description is given of the transducer
developed by E. I. Radion together with the author, which is
shown in section in figure 4. This construction makes it
possible to adjust the accelerator, so that lateral sensitivity
is reduced to a minimum. On the basis of this accelerometer
a three-component accelerometer was developed, which does not
exhibit the unfavorable properties of similar constructions,
as e. g. great weight and unfavorable resonance properties.
This accelerometer is shown in figure 6. In this construction
the two crystals which are intended to measure lateral
acceleration in each case consist of two crystals and are
connected in such a manner that the e.m.f. generated by them
is mutually compensated. Complete compensation of lateral

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The Construction of Piezoelectric Accelerometers   SOV/119-60-1-6/14
With Minimum Lateral Sensitivity

        sensitivity is effected by means of a differential condenser
        connected to the amplifier input. There are 6 figures and
        3 Soviet references.

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S/123/60/000/024/011/014
A005/A001

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1960, No. 24, p. 259,
133956

AUTHOR: Fetisov, M.M.

TITLE: New Compensating Devices of the Seismic Design for Measuring the
Vibration Parameters

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, No. 3,
pp. 21-32

TEXT: The theory is considered of compensating accelerometers and vibro-
meters based on the operation principle of magnetoelectric inverted converter. The
movable part of the accelerometer is a coil in a permanent-magnet field; the
magnet is fixed to the device housing. The relative displacements of the magnet
and coil evoked by acting acceleration are transformed by the displacement trans-
mitter into changes of voltage, which is supplied to the amplifier input; the out-
put current of the amplifier is supplied to the coil and yields the compensating
force by its interaction with the magnetic field. The current in the coil is
proportional to the acceleration and measured by an ammeter or is supplied to a
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S/123/60/000/024/011/014
A005/A001

New Compensating Devices of the Seismic Design for Measuring the Vibration Para-
meters

vibrator. The inertial mass of the vibrometer for subsonic frequencies is a magnet
in the field of which is a coil fixed to the housing. A secondary inertial mass of
the undercompensation converter is suspended on the magnet by means of springs;
this converter is used for the conversion of that acceleration into voltage, which
acts upon the mass at the device housing vibrations; this voltage is supplied to
the amplifier input. The amplifier output current gets into the coil and origi-
nates a force, which seeks to keep the magnet with the secondary mass, connected
to it, immovable in space. If the amplification factor is sufficiently great, the
measured displacement is compensated by the travel of the movable part of the in-
verted converter; the latter keeps its position in space invariable with high
accuracy. The amplitude and the shape of the vibrations are determined by record-
ing the current in the coil. The circuitry, the generalized frequency character-
istics of the compensating accelerometer and the vibrometer are presented, and their
inaccuracies are considered.

S.I.I.

Translator's note: This is the full translation of the original Russian abstract.

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SHRAMKOV, Ye.G.; NOVITSKIY, P.V.; FETISOV, M.M.; ZORIN, D.I.

Concerning the structure and some fundamental characteristics
of present-day electric measuring devices. Elektrichestvo
no.8:20-25 Ag '62.   (MIRA 15:7)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.
              (Electric measurements)

FETISOV, M.M.

Method for converting electric circuit parameters to frequency changes. Izm. tekh. no.1:32-34 Ja '64.

(MIRA 17:11)

FETISOV, M.M.

Automatic compensating manometer with an inverted converter.
Priborostroenie no.7:8-10 Jl '64.   (MIRA 17:11)

L 28327-66   EWA(h)/EWT(l)

ACC NR: AP6007165   SOURCE CODE: UR/0115/65/000/012/0035/0039

AUTHOR: Fetisov, M. M.; Kremlevskiy, N. P.

ORG: none

TITLE: Errors of follower-type frequency transducers with square-law circuits

SOURCE: Izmeritel'naya tekhnika, no. 12, 1965, 35-39

TOPIC TAGS: frequency type transducer, electronic circuit, frequency conversion, error minimization

ABSTRACT: The errors associated with a new "follower-type square-law-circuit" electric-parameter-into-frequency transducer (Izm. tekhnika, 1964, no.1) are theoretically evaluated. The errors due to the square-law circuit, conversion, and nonlinearity for both astatic- and static-balancing conditions are evaluated, as are the errors due to loss in the reactive elements of the square-law circuit. Formulas for calculating the component and overall errors are developed. It is hoped that the new transducer might have an overall error of 0.1—1%. Orig. art. has: 1 figure and 35 formulas.

SUB CODE: 09 / SUBM DATE: none / ORIG REF: 002

Card 1/1   UDC: 621.372.632.088:62-503